

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/08192

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B66B 5/00, 7/12; G01N 27/00

US CL : 702/34, 65; 187/393

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 702/33-36, 41, 43, 57, 64, 65, 182, 183, 185; 187/391, 393

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0194935 A1 (CLARKE et al) 26 December 2002 (26.12.2002), 0021, lines 1-11, 0022, lines 2-4, and 0028, line 1 to 0029, line 3.	16 and 20
X	US 2004/0046540 A1 (ROBAR et al) 11 March 2004 (11.03.2004), 0001, lines 1-4, 0007, lines 6-9, and 0047, lines 1-7.	16 and 20
A	US 4,936,136 A (VANHALA) 26 June 1990 (26.06.1990), column 2, lines 26-65, column 3, lines 14-18, column 4, lines 19-44.	1-24
A	US 6,653,943 B2 (LAMB et al) 25 November 2003 (25.11.2003), column 2, lines 26-37.	1-24
A	US 5,921,352 A (GARRIDO et al) 13 July 1999 (13.07.1999), column 1, lines 14-24 and 40-44, and column 2, lines 52-57.	1-24
A	US 6,405,833 B1 (BARANDA et al) 18 June 2002 (18.06.2002), column 1, lines 40-54.	1-24
A	JP 09-178611 A (KAWASAKI STEEL CORP.) 11 July 1997 (11.07.1997), entire document.	1-24

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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document member of the same patent family

Date of the actual completion of the international search

23 November 2004 (23.11.2004)

Date of mailing of the international search report

28 FEB 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

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